

## Multi-range pressure and differential pressure transmitter

### Type 402005

#### Applications

- Ventilation
- Air conditioning
- Clean-room technology
- Flue draft mechanisms
- Filter monitoring

#### Brief description

This transmitter has a piezoresistive pressure sensor and can be used to measure differential pressure in non-aggressive gases.

Differential pressure measurement is used, for example, in clean rooms. Permanent overpressure protects the process against dust penetration.

The multi-range pressure and differential pressure transmitter is a many-faceted, microprocessor-controlled measuring instrument. Apart from the varied range of applications, DIP switches (dual in-line package) are used to choose between standardized output signals (current or voltage signal) and each of four different measuring ranges in the hecto-pascal range. Adjustable damping is incorporated for widely fluctuating pressures. A connector system allows an LCD display to be added-on, to display the pressure on-site.



Type 402005

#### Customer benefits

##### • Versatile and economic

A 9-way DIP switch with a strikingly simple configuration is used to select the measuring range, the output and the damping.

This multi-faceted measuring instrument combines numerous functions, thus limiting the number of variations required, and as a result, reducing prices to a minimum and shortening delivery times. Because the measuring system is wear-free, operation is almost maintenance-free.

##### • Compact and uncomplicated

Small but effective. The compact size of this measuring instrument makes it easy to install and saves space at the same time. Time is also saved on start-up, thanks to an uncomplicated DIP switch.

#### Key features

- 4 measuring ranges, adjustable within two basic measuring ranges:
  - Basic range 1:  
2.5 hPa, 5 hPa, 7.5 hPa, 10 hPa
  - Basic range 2:  
25 hPa, 50 hPa, 75 hPa, 100 hPa
- Output signal: 0 - 10 V DC and 0(4) - 20 mA, adjustable
- Damping is adjustable for widely fluctuating pressures
- LCD display connection option

## Technical data

### General

<b>Reference conditions</b>	DIN 16086 and EN 60770
<b>Sensor</b> Principle of measurement	Silicon sensor (piezoresistive)
<b>Location</b> Mounting location Calibration location	Device standing vertically, process connection on bottom Device standing vertically, process connection on bottom

### Measuring range

Basic range 1	The measuring ranges start at 0 hPa.				
Measuring range	2.5	5	7.5	10	hPa
Overload capacity	680				hPa
Bursting pressure	2000				hPa
Maximum both-sided system pressure	8000				hPa
Basic range 2	The measuring ranges start at 0 hPa.				
Measuring range	25	50	75	100	hPa
Overload capacity	680				hPa
Bursting pressure	2000				hPa
Maximum both-sided system pressure	8000				hPa

### Output

<b>Analog output</b> Output 409	0 - 10 V DC, 3 wires 0 - 20 mA, 3 wires 4 - 20 mA, 3 wires
<b>Damping</b>	10 ms; 0.5 s; 2 s; 4 s
<b>Burden</b> Voltage 0 to 10 V DC, 3 wires Current 0(4) - 20 mA, 3 wires	$R_L \geq 2 \text{ k}\Omega$ from 14 to 18 V supply voltage $R_L \leq 300 \Omega$ above 18 V supply voltage $R_L \leq 500 \Omega$

### Mechanical properties

<b>Parts in contact with the media</b> Material	PU, glass, FeNiCo, Au, Al, PEI
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<b>Enclosure</b> Dimensions	86 x 56 x 40 mm (H x W x D)
<b>Weight</b>	200 g

## Ambient conditions

<b>Permissible temperatures</b> Medium Environment Storage	10 to 50 °C 10 to 50 °C -10 to +70 °C
<b>Permissible relative humidity</b>	80% relative humidity
<b>Permissible mechanical loading</b> Vibration resistance Shock resistance <sup>a</sup>	on request 100 g for 6 ms
<b>Electromagnetic compatibility</b> Interference emission <sup>b</sup> Interference immunity <sup>c</sup>	Class B Industrial requirements
<b>Enclosure protection<sup>a</sup></b>	IP54

<sup>a</sup> EN 60068-2-27

<sup>b</sup> EN 61000-6-3

<sup>c</sup> EN 61000-6-2

<sup>d</sup> EN 60529

## Accuracy

<b>Linearity<sup>a</sup></b>	± 2 % of the set measuring range
<b>Long-term stability<sup>b</sup></b>	± 2 % of the set measuring range per year (typical)

<sup>a</sup> Linearity based on limit point setting

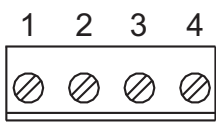
<sup>b</sup> with reference conditions to EN 61298-1

## Auxiliary power

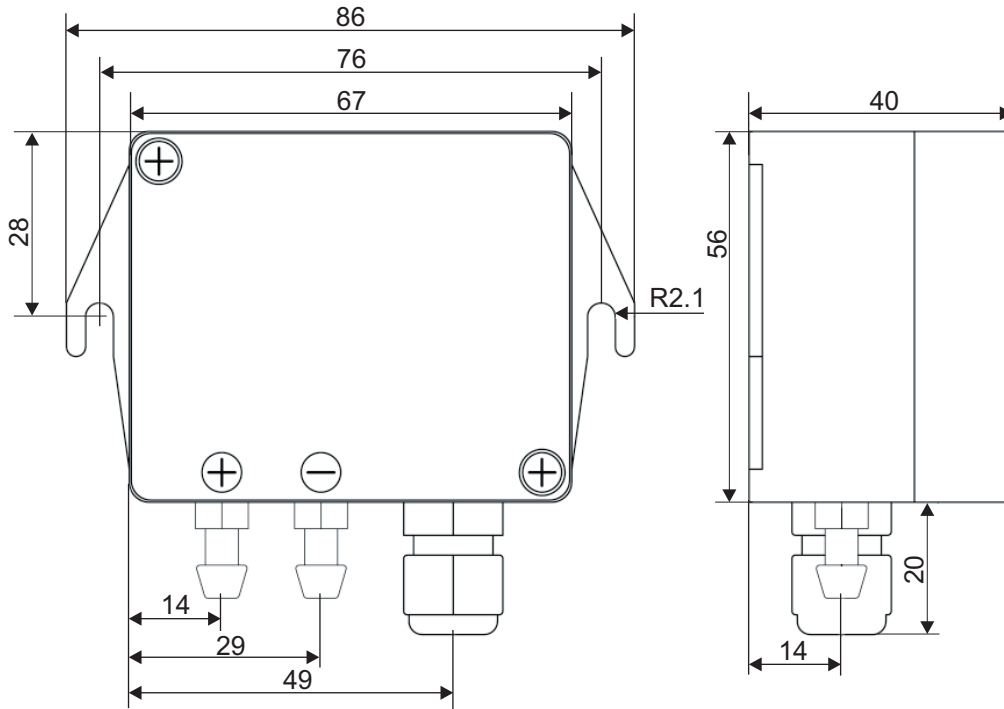
<b>Supply voltage U<sub>B</sub><sup>a</sup></b>	14 - 38 V DC, 12 - 31 V AC
<b>Power consumption</b>	approx. 20 mA (without load)
<b>Reverse polarity protection</b>	YES
<b>Circuit</b>	SELV

<sup>a</sup> Residual ripple: Peak voltages must **not** exceed or fall below the values specified for the supply voltage!

## Connection diagram

Connection		Terminal assignment	
			
		Screw terminal	
<b>0(4) - 20 mA, 3 wires, output 409</b>			
Supply voltage	14 - 38 V DC, 12 - 31 V AC	U <sub>B</sub> 0 V/S- S+	3 2/4 1
<b>0 - 10 V DC, 3 wires, output 409</b>			
Supply voltage	14 - 38 V DC, 12 - 31 V AC	U <sub>B</sub> 0 V/S- S+	3 2/4 1

## Dimensions



## Order details

402005/000	<b>(1) Basic type</b> Multi-range pressure and differential pressure transmitter
	<b>(2) Relative pressure measuring range</b> <b>Overpressure</b>
441	0 - 2.5 hPa, 0 - 5 hPa, 0 - 7.5 hPa, 0 - 10 hPa
442	0 - 25 hPa, 0 - 50 hPa, 0 - 75 hPa, 0 - 100 hPa
	<b>(3) Output</b>
409	0(4) - 20 mA / DC 0 - 10 V3 wires (switchable)
	<b>(4) Process connection</b>
294	Tube connection $\varnothing$ 6.6 mm x 10 mm (for flexible tubing $\varnothing$ 6 mm)
	<b>(5) Extra codes</b>
000	none

<b>Order code</b>	(1)	-	(2)	-	(3)	-	(4)	/	(5)
<b>Order example</b>	402005/000	-	441	-	409	-	294	/	000

## Stock instruments

Delivery in 3 working days after receipt of order

Type	Version	Part No.
402005/000-441-409-294	0 - 2.5 hPa, 0 - 5 hPa, 0 - 7.5 hPa, 0 - 10 hPa	00561200
402005/000-442-409-294	0 - 25 hPa, 0 - 50 hPa, 0 - 75 hPa, 0 - 100 hPa	00550210

## Accessories

Delivery in 3 working days after receipt of order

Item	Part No.
Connectable LCD display	00550211